



## RADIODIAGNOSIS

## A RARE CASE OF ILEO-ILEAL INTUSSUSCEPTION DUE TO INTESTINAL LYMPHOID HYPERPLASIA

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**ABSTRACT** Intussusception is invagination of a portion of intestine into an adjacent segment and is a common abdominal emergency in children. The commonest location of intussusception in children is ileo-colic with common lead points being Meckel's diverticulum, polyp and duplication cyst. We report a case of a 06 year old boy who had ileo-ileal intussusception due to intestinal lymphoid hyperplasia.

**KEYWORDS :** Intussusception, Ileo-ileal, Ultrasound, Intestinal Lymphoid Hyperplasia

### INTRODUCTION

Intussusception is the telescoping or invagination of a portion of the intestine (intussusceptum) into an adjacent segment (intussusciptens) and is the most common cause of intestinal obstruction in infants (1). The commonest location of intussusception in children is ileo-colic. In most cases no obvious lead point is identified, common lead points being Meckel's diverticulum, polyp, duplication cyst and appendiceal inflammation. One of the less common lead point is intestinal lymphoid hyperplasia (2). We report here a case of a 06 year old boy who had ileo-ileal intussusception due to intestinal lymphoid hyperplasia.

### CASE REPORT

06 year old boy presented to our hospital with a two day history of pain abdomen, loose motions and recurrent vomiting. Patient gave no history of fever or jaundice. He gave history of similar complaints three months back for which he was hospitalized and underwent appendectomy. On examination, he had tachycardia and mild distension of abdomen. Routine hematological and biochemical parameters showed leucocytosis with total leucocyte count of 13,400 per cubic mm. Radiograph of the abdomen was normal. Ultrasound of abdomen showed evidence of intussusception in the right iliac fossa with "crescent-in-doughnut sign" on transverse scan (Fig 1) and "pseudokidney sign" on longitudinal scan (Fig 2). Fluid was seen trapped inside intussusception. On Doppler, absence of blood flow was seen in the intussusception.

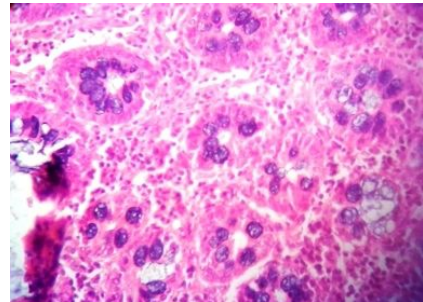


**Fig 1-Transverse sonogram of the abdomen in the right iliac fossa showing intussusception with crescent in doughnut sign and trapped fluid inside intussusception.**



**Fig 2 – Longitudinal sonogram of the abdomen in the right iliac fossa showing intussusception with pseudokidney sign and trapped fluid inside intussusception.**

Patient was taken up for emergency laparotomy which showed ileo-ileal intussusception about 15 cm proximal to the ileo-caecal junction. Intussusceptum was irreducible with non viable intussusciptens. About 50 ml of serous free intra-peritoneal fluid was seen. Resection of gangrenous ileal segment was carried out with end to end ileo-ileal anastomosis. On exploration of the resected ileal segment a lead point with polypoid lesion was identified at the tip of intussusceptum. Histopathological examination of the polypoid lesion showed diffuse lymphoid cell infiltration in mucosa, submucosa, muscularis and serosa (Fig 3). The lymphoid hyperplasia was mostly reactive in nature and was distorting the glandular architecture of ileum. Immunohistochemistry was negative for lymphoma and a diagnosis of Intestinal lymphoid hyperplasia was offered.



**Fig 3 – Photomicrograph of the ileal polypoid lesion showing diffuse lymphoid cell infiltration in mucosa, submucosa and muscularis with distortion of the glandular architecture.**

Patient had wound infection in the post-operative period, which was managed with parenteral and subsequently oral antibiotics. Patient showed good recovery and was discharged on 12<sup>th</sup> post op day. Patient is on a regular follow up and is presently asymptomatic.

### DISCUSSION

Intussusception is a common abdominal emergency in children and usually occurs in children between 6 months and 2 years of age (3). Majority (more than 95%) of cases of intussusception in children are ileocolic; that is, the ileum becomes telescoped into the colon. Less common locations are ileo-ileal (4%) and colo-colic (1%). Most of the cases of childhood intussusception are idiopathic. The few cases (<5% of cases) in which a lead point is identified are due to Meckel's diverticulum (most common), polyp, duplication cyst, suture granuloma, appendiceal inflammation, cystic fibrosis, celiac disease and Henoch-Schönlein purpura (4).

The classic clinical triad of acute abdominal pain (colic), red currant jelly stools and a palpable abdominal mass are present in less than 50% of children with intussusception (5). Some children may present lethargy, convulsion, vomiting or gastroenteritis. Our patient presented with two day history of pain abdomen, loose motions and recurrent vomiting and there was no hematochezia or palpable abdominal mass.

Radiological modalities used for diagnosis of intussusception include radiograph of abdomen, barium enema, Ultrasound (US), color doppler flow imaging and computed tomography (CT). Radiographs of abdomen may show a soft tissue mass in the right upper quadrant, gasless abdomen, obstruction of small intestine, target sign or meniscus sign. The classic signs of intussusception at barium enema are meniscus sign and coiled spring sign (6).

US has a high sensitivity for the diagnosis of intussusception (98%-100%) (7). Various signs characteristic of intussusception have been described which include crescent-in-doughnut sign and multiple concentric ring sign on axial scans and sandwich sign, hayfork sign and pseudokidney sign on longitudinal scans. Hypoechoic outer ring with a hyperechoic crescentic center produces the crescent-in-doughnut sign. Alternating hypoechoic and hyperechoic rings at the apex of intussusception produce multiple concentric rings. On longitudinal scans, three parallel hypoechoic bands separated by two nearly parallel hyperechoic bands produce the sandwich sign. The hayfork sign is a variant of sandwich sign and is seen at the apex of intussusception. The pseudokidney sign is produced when the mesentery is demonstrated on only one side of the central limb of intussusceptum. Sometimes, trapped peritoneal fluid may be seen within an intussusception and it has been shown to be associated with ischemia, irreducibility and increased risk of perforation. Absence of blood flow at the apex of intussusception at doppler is associated with bowel necrosis and irreducibility (5).

In our patient, radiograph of the abdomen was unremarkable. Ultrasound of abdomen showed evidence of intussusception in the right iliac fossa with crescent-in-doughnut sign on transverse scan and pseudokidney sign on longitudinal scan. Peritoneal fluid was seen trapped inside intussusception. Absence of blood flow was seen in the intussusception at doppler. Since the patient had trapped peritoneal fluid inside intussusception and absent blood flow in the intussusception, ultrasound guided reduction was not attempted and patient was taken up for emergency laparotomy.

Histopathological examination of the resected specimen suggested Intestinal lymphoid hyperplasia to be the lead point. Intestinal lymphoid hyperplasia is an uncommon cause of intussusception in young children and is characterized by numerous hyperplastic lymphoid nodules underneath the surface epithelium. These nodules form polyp like lesions which protrude into the lumen from the intestinal wall. Intestinal lymphoid hyperplasia has been reported in association with viral, bacterial, parasitic infections and also as an allergic response to various foods (2).

The usual course of an untreated intussusception is bowel obstruction followed by perforation, peritonitis and septic shock. Treatment of intussusception may be surgical or non-surgical (8). Nowadays, non-surgical methods are initially employed if investigations rule out ischemia or irreducibility. Enema therapy is usually employed as a non-surgical treatment modality and is usually guided with fluoroscopy when a barium, water-soluble, or air enema is used. Ultrasound guidance is used when therapy is performed with a water, saline or gas enema.

## CONCLUSION

Intussusception is a common abdominal emergency in children and necessitates prompt diagnosis and management. A high index of suspicion and appropriate investigations can result in prompt diagnosis. The purpose of this paper is to present a rare case of intussusception (rare site and rare lead point) and also discuss the characteristic ultrasound signs.

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